A smart irrigation system for a garden.

This system will monitor soil moisture levels and activate the irrigation system to water the garden when needed.

Algorithm :

1.Initialize System: Set the desired soil moisture threshold and initialize the current soil moisture reading.

2.Start Main Loop: Begin an infinite loop to continuously monitor and control the soil moisture level.

3.Read Soil Moisture: Get the current soil moisture reading from the sensor.

4.Check Soil Moisture Level:

- If the soil moisture level is below the threshold, activate the irrigation system.
- If the soil moisture level is at or above the threshold, deactivate the irrigation system.

5.Wait and Repeat: Wait for a short period before taking the next reading to avoid rapid cycling.

6.End Loop: Loop continues infinitely to simulate real-time operation.

Flow chart :

Code :

```
import time

import random

# Constants for soil moisture threshold and wait time

SOIL_MOISTURE_THRESHOLD = 30.0  # Soil moisture threshold in percentage

WAIT_TIME = 10  # Wait time in seconds

# Simulate the state of the irrigation system

irrigation_system_on = False

def read_soil_moisture():

    # Simulate reading soil moisture from a sensor

    return random.uniform(10.0, 50.0)

def activate_irrigation_system():

    global irrigation_system_on

    if not irrigation_system_on:

        print("Irrigation system ACTIVATED")
```

```
        irrigation_system_on = True
def deactivate_irrigation_system():
    global irrigation_system_on
    if irrigation_system_on:
        print("Irrigation system DEACTIVATED")
        irrigation_system_on = False
# Main loop
while True:
    # Read the current soil moisture level
    current_soil_moisture = read_soil_moisture()
    print(f"Current soil moisture: {current_soil_moisture:.2f}%")
    # Check soil moisture level and control irrigation system
    if current_soil_moisture < SOIL_MOISTURE_THRESHOLD:
        activate_irrigation_system()
    else:
        deactivate_irrigation_system()
    # Wait for a short period before the next reading
    time.sleep(WAIT_TIME)
```

Output :

```
34      if current_soil_moisture < SOIL_MOISTURE_THRESHOLD:
35          activate_irrigation_system()
```

```
Current soil moisture: 37.61%
Current soil moisture: 20.19%
Irrigation system ACTIVATED
Current soil moisture: 48.94%
Irrigation system DEACTIVATED
Current soil moisture: 44.69%
```